

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 10-001012

(43)Date of publication of application : 06.01.1998

(51)Int.Cl.

B60R 21/20

(21)Application number : 08-174246

(71)Applicant : INOAC CORP

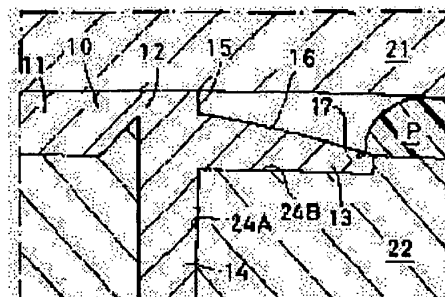
(22)Date of filing : 12.06.1996

(72)Inventor : IWANAGA KENTARO

(54) STRUCTURE OF AIR BAG DOOR MEMBER TO BE MOLDED INTEGRALLY WITH CABIN-SIDE MEMBER**(57)Abstract:**

PROBLEM TO BE SOLVED: To provide a structure for an automobile air bag door member for which there is no fear of causing deformation due to contact with a resin member constituting a cabin-side member when it is molded integrally with the cabin-side member, a good appearance is assured and also, a safe and positive opening is realized.

SOLUTION: An air bag door member 10 comprises a door proper part 11, a break-expected part 12 which is formed in the door proper part 11 to become a door opening part, a slope 16 formed via a step part 15 which is lower by one step than the door proper part 11, a peripheral flange part 13 to be unified to the cabin-side member and an attachment part 14 for attaching the air bag door member to an air bag accommodating container, the break-expected part being so constituted as to abutt the mold face part of said molding die and an end edge 17 of the peripheral flange 13 being accommodated in a recessed part 24B with is lower than the general mold face of said molding die.

**LEGAL STATUS**

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

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[Number of appeal against examiner's decision of rejection]

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CLAIMS

[Claim(s)]

[Claim 1] It is a member, fabrication of vehicle room flank material — public funds — the air bag door for being filled up with the resin material which is arranged beforehand and constitutes this vehicle room flank material in type, and fabricating to one — the aforementioned air bag door member A door book soma and the fracture schedule section used as door opening formed in the aforementioned door book soma, It has the periphery flange which is equipped with the inclined plane formed through the step which becomes low one step from the aforementioned door book soma, and is united with vehicle room flank material, and the attachment section to an air bag hold container. the aforementioned door book soma — at least — the fracture schedule section — the aforementioned fabrication, while being constituted so that public-funds type ***** may be contacted the edge of the aforementioned periphery flange — the aforementioned fabrication — the air bag door for the vehicle room flank material characterized by being constituted so that it may hold in a low crevice from a public-funds type general type side, and really fabricating — the structure of a member

[Claim 2] the air bag door for the vehicle room flank material by which the aforementioned flange was constituted from a resin which has high rigidity and high thermal resistance in the claim 1, and really fabricating — the structure of a member

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] the air bag door for vehicle room flank material and really fabricating this invention — it is related with the structure of a member

[0002]

[Description of the Prior Art] For example, the air bag equipment arranged at the passenger side of an automobile is attached in the vehicle room flank material background which serves as an air bag hold container held where an air bag and this air bag are folded up from the instrument panel of the front face of a passenger seat etc. including a starting device. The expansion opening (schedule) section for an air bag is formed in the vehicle room flank material in which the aforementioned air bag equipment was formed, and this opening is covered by the air bag door section with the aforementioned instrument panel and appearance of the same kind at it at time of peace. And when an automobile once gets a big shock by collision etc., the starting device contained in the aforementioned air bag hold container operates, an air bag is expanded, and opening of the air bag door section concerned of vehicle room flank material is pushed open and carried out from a background according to the expansion-pressure force of this air bag.

[0003] The following is known as structure of the air bag door section of this vehicle room flank material. One attaches the another fabricated door member in the vehicle room flank material in which air bag expansion opening was formed according to a back process at the aforementioned air bag expansion opening. the door member which another fabricated others — fabrication of vehicle room flank material — metal mold — it arranges inside and fabrication of the vehicle room flank material concerned, simultaneously the aforementioned door member and vehicle room flank material are unified

[0004] however — if it is in the former another fabrication structure — contraction of the mold goods accompanying [vary or] use with a slight mold-goods size etc. — a door — a member — it is easy to produce a crevice on the outskirts, and there is a possibility that the appearance as vehicle room flank material may be spoiled Moreover, attaching a door member in air bag expansion opening of vehicle room flank material according to a back process makes a man day increase.

[0005] Then, the latter one fabrication structure is examined variously in recent years. According to this structure, since an air bag door member is unified at the time of fabrication of vehicle room flank material, there is no crevice produced between the air bag door section and vehicle room flank material, and appearance becomes very good. And since a back process becomes unnecessary, it is efficiently producible. the air bag door for unifying and forming this invention in such a predetermined position of vehicle room flank material — it is related with the structure of a member

[0006] An example of this structure is shown in drawing 15 and drawing 16 . For vehicle room flank material and 51, as for an air bag and 53, air bag equipment and 52 are [the sign 50 in drawing / a starting device and 54] air bag hold containers. the air bag door section D divides in the predetermined position of this vehicle room flank material 50 — having — an air bag door — the member 60 is formed in one an air bag door — a member 60 contains the door book soma

61, the fracture schedule section 62, and the attachment section 63 The door book soma 61 is allotted to the rear face of the air bag door section D, is wide opened in the case of air bag expansion, and enables smooth expansion of an air bag 52, and the configuration is prescribed by the fracture schedule section 62. In addition, in this example, the fracture schedule section 62 is formed in abbreviation zygal, and this door book soma 61 is divided into two door portions, and is opened wide. Moreover, the fracture schedule section 62 consists of a fragile site of thin meat, such as a V groove or U slot prepared from the rear-face side of the aforementioned door book soma 61, as mentioned above, it is fractured at the time of air bag expansion, opens the door book soma 61 wide, and turns into air bag expansion opening. the attachment section 63 is attached in the air bag hold container 54 — having — a door — the portion which connects a member 60 and air bag equipment 51 — it is — the aforementioned door — it has hung from the periphery of a member 60

[0007] by the way — if it is in this kind of air bag door structure — a door — constituting by the elasticity elastomer softer than surrounding vehicle room flank material is proposed in recent years so that a member 60 may not break with the shock at the time of expansion of an air bag moreover, this door — making cleavage of an air bag door easily and reliable, as it is not placed between fracture schedule section 62 portions of a member 60 by the resin material which constitutes vehicle room flank material, and preventing the crack of the vehicle room flank material at the time of opening and generating of a fragment is proposed

[0008] such a door — in case vehicle room flank material is fabricated using a member 60, it is shown in drawing 16 — as — the aforementioned door — a member 60 — the predetermined position of the form blocks 70 and 71 for vehicle room flank material — arranging — the inside of a mold — the vehicle room flank material composition resin material P — being filled up — fabrication, simultaneously the door of the vehicle room flank material 50 — a member 60 is unified however, it described above — as — a door — when it consists of elasticity elastomers with a soft member 60, the problem on the following fabrication arises

[0009] first, the door arranged in a mold at the time of restoration of the vehicle room flank material composition resin material P — it is the problem of the periphery edge of the door book soma 61 deforming a member 60 with ***** or resin temperature especially, and the conjunction line of the door member and vehicle room flank material which were really fabricated being confused, and spoiling appearance Moreover, in the aforementioned fracture schedule section 62, there is a possibility that fracture schedule section 62 front face may deform with ***** or resin temperature, and the vehicle room flank material composition resin material P may affect it there like illustration at the fracture performance of a wraparound cover and the fracture schedule section 62 concerned.

[0010]

[Problem(s) to be Solved by the Invention] Then, this invention is proposed for the purpose of canceling the above troubles. Deformation of a member is not produced. the door by contact into the vehicle room flank material composition resin material at the time of vehicle room flank material and really fabricating — the air bag door for the vehicle room flank material which keeps beautiful the appearance of the air bag door which appears in a vehicle room flank material front face and by which safe and positive opening of an air bag door is realized, and really fabricating — it is going to offer the structure of a member

[0011]

[Means for Solving the Problem] It is a member. namely, this invention — fabrication of vehicle room flank material — public funds — the air bag door for being filled up with the resin material which is arranged beforehand and constitutes this vehicle room flank material in type, and fabricating to one — the aforementioned air bag door member with a door book soma It has the periphery flange which is equipped with the inclined plane formed through the step which becomes low one step, and is united with vehicle room flank material, and the attachment section to an air bag hold container from the fracture schedule section used as door opening formed in the aforementioned door book soma, and the aforementioned door book soma. the aforementioned door book soma — at least — the fracture schedule section — the aforementioned fabrication, while being constituted so that public-funds type ***** may be

contacted the edge of the aforementioned periphery flange — the aforementioned fabrication — the air bag door for the vehicle room flank material characterized by being constituted so that it may hold in a crevice lower than a public-funds type general type side, and really fabricating — the structure of a member is started

[0012]

[Embodiments of the Invention] According to an attached drawing, this invention is explained in detail below. The perspective diagram of a member, a cross section [in / the a-a line / in drawing 2], drawing 3 , or drawing 6 is what shows an example of the forming method of the vehicle room flank material which used the air bag door member of drawing 1 . the air bag door drawing 1 indicates an example of this invention structure to be — They are the cross section showing the state where drawing 3 has arranged the door member to the form block, the cross section which drawing 4 expands **** of the important section, and is shown, the cross section showing the state where drawing 5 poured in vehicle room flank material composition resin material into the mold, and the cross section showing the state where fabrication completed drawing 6 . Moreover, the cross section in which drawing 7 or drawing 12 showing other examples of this invention, and showing the example in which drawing 7 formed the crevice for periphery flanges more deeply than the thickness of a flange edge, the air bag door to which drawing 8 made the fracture schedule section the abbreviation H typeface — the perspective diagram of a member, and a cross section [in / the b-b line / in drawing 9] — drawing 10 — the door member — vehicle room flank material fabrication — public funds — the cross section showing the example allotted to type — The perspective diagram to which drawing 11 made the fracture schedule section the typeface of abbreviation KO, a cross section [in / the c-c line / in drawing 12], The cross section showing the example from which drawing 13 constituted the periphery flange with high rigidity and the resin of high thermal resistance, and drawing 14 are the cross sections showing the example which constituted the periphery flange containing the attachment section with high rigidity and the resin of high thermal resistance.

[0013] The air bag door member of this invention is arranged in the mold in the case of fabrication of vehicle room flank material, is really fabricated by the predetermined position simultaneously with fabrication of the aforementioned vehicle room flank material, and as shown in drawing 1 , it has the door book soma 11, the fracture schedule section 12, the periphery flange 13, and the attachment section 14. The door book soma 11 is formed in a wrap configuration in air bag expansion opening of the air bag equipment formed in a vehicle room flank material background, and the fracture schedule section 12 is formed in the rear face.

[0014] The fracture schedule section 12 is made easy to fracture as a fragile site of thin meat from the circumference by making the aforementioned door book soma 11 fracture certainly in accordance with the configuration of a door portion, opening wide, being for the air bag which expanded serving as opening promptly developed to the vehicle interior of a room, and preparing a V groove or U slot with the pressure of the air bag which expanded. In this example, as shown in drawing, it is formed in a plane view abbreviation H typeface, and the aforementioned door book soma 11 is divided into two door portions. When this fracture schedule section 12 at least unites with vehicle room flank material in the aforementioned door book soma 11, thickness and a channel depth are determined that it will appear in the front face. In addition, in this example, the door book soma 11 whole containing the fracture schedule section 12 has appeared in the vehicle room flank material front face.

[0015] The periphery flange 13 is formed in the outside periphery of the aforementioned door book soma 11 at one. This periphery flange 13 was covered by vehicle room flank material composition resin material at the time of fabrication of vehicle room flank material, it is for unifying a door member and the front face is equipped with the inclined plane 16 formed through the step 15 which becomes low one step rather than the surface height of the door book soma 11 concerned. The aforementioned inclined plane 16 inclines so that it may become low toward the edge about the periphery flange 13. since it is made thin, ***** and ***** are made low and the vehicle room flank material composition resin material which was wearing the inclined plane 16 is stopped by the step 15 by it as it goes to the door book soma 11 — vehicle room flank material composition resin material — a door — a possibility of making it deforming in

contact with this soma periphery and the fracture schedule section of a member disappears
 [0016] The attachment section 14 is formed in the rear face of the aforementioned door book soma 11 at one, and is attached in the air bag hold container of air bag equipment. This attachment section 14 cannot be overemphasized by being formed according to the configuration for opening of an air bag hold container.

[0017] the air bag door which consists of such composition — as described above, a member 10 consists of an elasticity elastomer of TPO (polyolefine system thermoplastic elastomer) etc., and is fabricated by another fabrication — having — fabrication of vehicle room flank material — public funds — it is beforehand arranged in type and unites with vehicle room flank material The example is shown in drawing 3 or drawing 7 . the sign 20 in drawing — vehicle room flank material fabrication — public funds — as for a punch and 22, type and 21 are [female mold and 23] mold-goods cavities the **** predetermined position of female mold 22 — a door — a member — the crevice 24 for arrangement is formed this door — a member — the crevice 24 for arrangement — the aforementioned door — it is for positioning a member 10 in the predetermined place in a mold, and consists of crevice 24A for the attachment sections, and crevice 24for periphery flanges B

[0018] As shown in drawing 4 , crevice 24A for the attachment sections is formed in the depth held in the position which makes the fracture schedule section 12 contact **** (this example punch 21 type side) of the door book soma 11 which counters at least. making this fracture schedule section 12 contact **** which counters — the portion concerned of vehicle room flank material — a door — it consists of only resin material of a member It prevents producing a fragment etc. in both the fracture surface as if it not being placed between the fracture schedule sections 12 by vehicle room flank material composition resin material but the fracture performance of the portion concerned being secured by that cause.

[0019] Moreover, crevice 24B for periphery flanges is formed in the depth of the periphery flange 13 in which the side-front edge 17 is held in a mold at least. this crevice 24B for periphery flanges — an air bag door — it prevents holding the periphery flange side-front edge 17 of a member 10 in the same few height position as a duplicate-cavity-plate side, and the vehicle room flank material composition resin material with which it fills up the inside of a mold by flowing contacting, and producing deformation

[0020] In addition, the periphery flange 13 may form this crevice 24B for periphery flanges in the depth (it is got blocked and is the depth deeper than the side-front edge 17) completely held in a mold. Then, a large next door, a door member, and vehicle room flank material are joined more firmly, and the thickness of the periphery flange 13 aforementioned portion is unified. The example is shown in drawing 7 . For a periphery flange and 21A, a punch and 22A are [a sign 10 / a door member and 13 / a cavity and 24C of female mold and 23A] the crevices for periphery flanges.

[0021] Thus, a door member is beforehand arranged in a mold and it is filled up with the resin material P which constitutes vehicle room flank material. the resin material P with which it filled up is shown in drawing 5 — as — the inside of a mold — flowing — an air bag door — the position of a member 10 is reached a door — without the vehicle room flank material composition resin material P with which it filled up in the mold contacts the aforementioned edge 17 since the nose of cam is contained in crevice 24B for periphery flanges, as the periphery flange 13 of a member 10 was described above — smooth — flowing — an inclined plane 16 — a wrap And as shown in drawing 6 , ***** and ***** become low and the vehicle room flank material composition resin material P which was wearing the inclined plane 16 stops them by the step 15 as it goes to the door book soma 11. Even if the aforementioned inclined plane 16 inclines so that the door book soma 11 side may become high, and not only vehicle room flank material unifies [the aforementioned periphery flange 13] certainly, but the vehicle room flank material composition resin material P contacts a step 15, a door member is not made to produce deformation, as described above. And an inclined plane 14 is formed, intensity does not fall considering a nose of cam as thin meat, and appearance is also very good. the air bag door firmly united with the obtained vehicle room flank material in the periphery flange 13 — a member 10 forms — having — the air bag door — the periphery line of a member 10 is formed good

[appearance]

[0022] Drawing 8 or drawing 14 shows other examples of this invention. Drawing 8 and drawing 9 are the example which made only the aforementioned fracture schedule section 32 high while forming the fracture schedule section 32 in an abbreviation H typeface. According to this structure, as shown in drawing 10, the aforementioned fracture schedule section 32 contacts **** of the metal mold 35 which counters. For a door book soma and 33, as for the attachment section and 35, a periphery flange and 34 are [the sign 30 in drawing / an air bag door member and 31 / a punch and 36] female mold.

[0023] Furthermore, drawing 11 and drawing 12 are the examples which formed the fracture schedule section 42 in the shape of [of abbreviation KO] a character, and made only the aforementioned fracture schedule section 42 high. For the sign 40 in drawing, as for a door book soma and 43, a door member and 41 are [a periphery flange and 44] the attachment sections.

[0024] Moreover, the high rigidity of a polypropylene system and a high heat resistant resin may constitute a periphery flange. drawing 13 — a door — it is the example which constituted the periphery flange 13 of a member by high rigidity and the high heat resistant resin For sign 10A, a door member and 11A are [the fracture schedule section and 14A of a door book soma and 12A] the attachment sections. Furthermore, drawing 14 is the example which constituted periphery flange 13B including the external surface of attachment section 14B by high rigidity and the high heat resistant resin.

[0025]

[Effect of the Invention] it illustrated above and explained — as — the air bag door of this invention — according to the structure of a member — a door — beautiful in the appearance of the air bag door which does not produce deformation by vehicle room flank material composition resin material contacting a door member and directly, and appears in a vehicle room flank material front face, since the periphery flange of a member is held in the crevice of metal mold — a thing is carried out Moreover, since the fracture schedule section is fabricated where **** which counters is contacted, it cannot be said to cover the fracture schedule section concerned with the composition resin material of vehicle room flank material, and can open an air bag door safely and certainly.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] the air bag door which shows an example of this invention structure — it is the perspective diagram of a member

[Drawing 2] It is a cross section in the a-a line.

[Drawing 3] It is the cross section showing an example of the forming method of vehicle room flank material using the air bag door member of drawing 1 , and showing the state where the door member has been arranged in a form block.

[Drawing 4] It is the cross section expanding and showing **** of the important section.

[Drawing 5] It is the cross section showing the state where vehicle room flank material composition resin material was poured in into the mold.

[Drawing 6] It is the cross section showing the state where fabrication was completed.

[Drawing 7] It is the cross section showing the example which formed the crevice for periphery flanges more deeply than the thickness of a flange edge.

[Drawing 8] the air bag door which made the fracture schedule section abbreviation zygal — it is the perspective diagram of a member

[Drawing 9] It is a cross section in the b-b line.

[Drawing 10] the door member — vehicle room flank material fabrication — public funds — it is the cross section showing the example allotted to type

[Drawing 11] It is the perspective diagram which made the fracture schedule section the typeface of abbreviation KO.

[Drawing 12] It is a cross section in the c-c line.

[Drawing 13] It is the cross section showing the example which constituted the periphery flange with high rigidity and the resin of high thermal resistance.

[Drawing 14] It is the cross section showing the example which constituted the periphery flange containing the attachment section with high rigidity and the resin of high thermal resistance.

[Drawing 15] the general air bag door formed in vehicle room flank material and one — it is the cross section showing the structure of a member

[Drawing 16] It is the cross section showing the example of forming.

[Description of Notations]

10 Air Bag Door — Member

11 Door Book Soma

12 Fracture Schedule Section

13 Periphery Flange

14 Attachment Section

15 Step

20 Vehicle Room Flank Material Fabrication — Public Funds — Type

24 Door — Member — Crevice for Arrangement

24A Attachment section hold crevice

24B The crevice for periphery flanges

P Vehicle room flank material composition resin material

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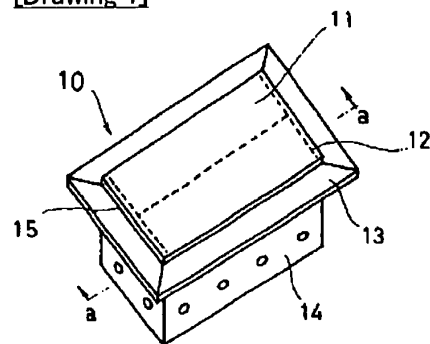
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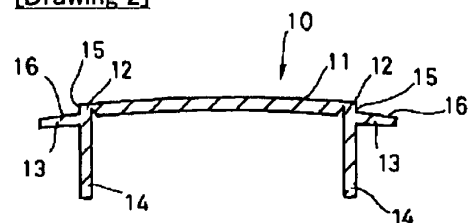
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DRAWINGS

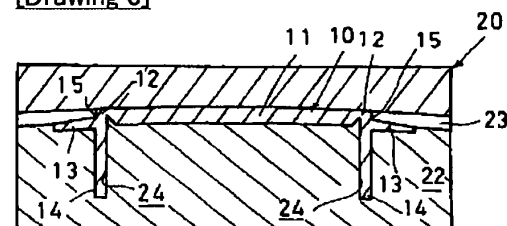
[Drawing 1]



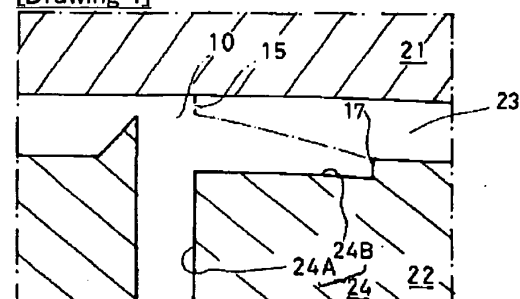
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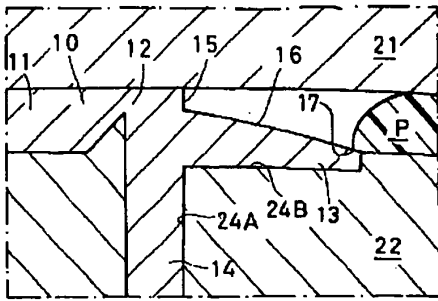
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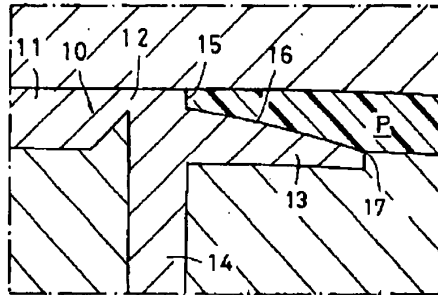
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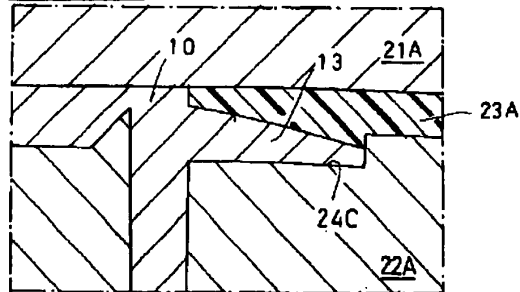
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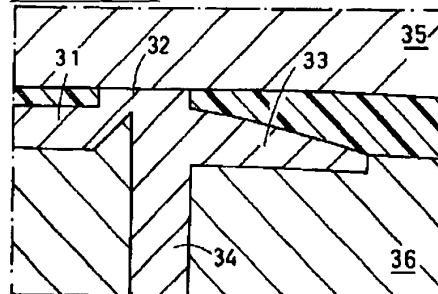
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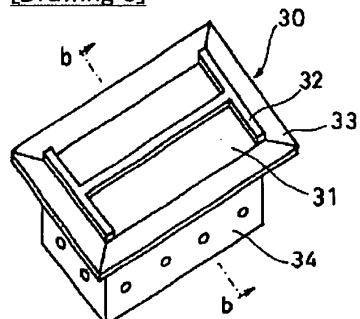
[Drawing 7]



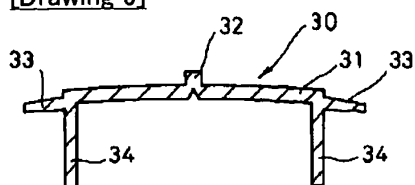
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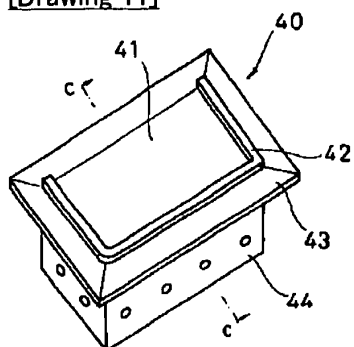
[Drawing 8]



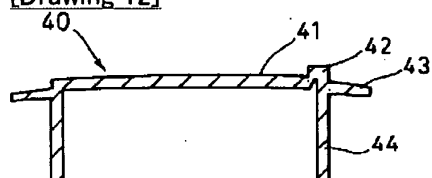
[Drawing 9]



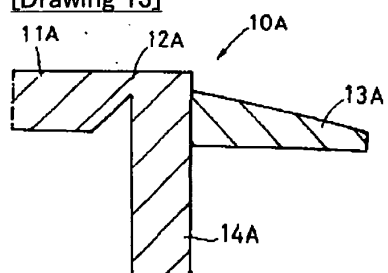
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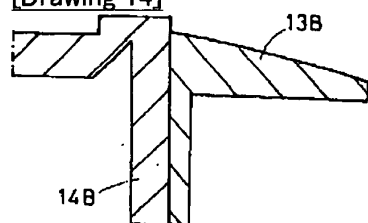
[Drawing 12]



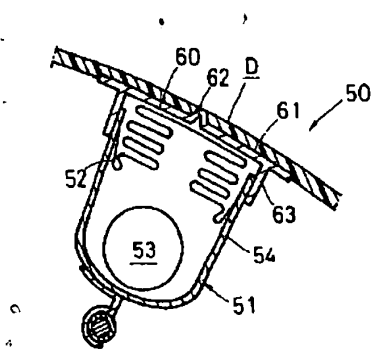
[Drawing 13]



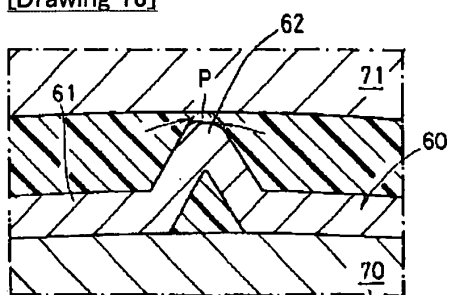
[Drawing 14]



[Drawing 15]



[Drawing 16]



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(19) 日本国特許庁 (J P)

(12) 公開特許公報 (A)

(11) 特許出願公開番号

特開平10-1012

(43) 公開日 平成10年(1998) 1月6日

(51) Int.Cl.⁵

識別記号

庁内整理番号

F I

技術表示箇所

B 6 0 R 21/20

B 6 0 R 21/20

審査請求 未請求 請求項の数 2 F D (全 6 頁)

(21) 出願番号 特願平8-174246

(22) 出願日 平成8年(1996) 6月12日

(71) 出願人 000119232

株式会社イノアックコーポレーション

愛知県名古屋市中村区名駅南2丁目13番4号

(72) 発明者 岩永 健太郎

愛知県安城市殿井町東長8番地1 株式会社イノアックコーポレーション桜井事業所内

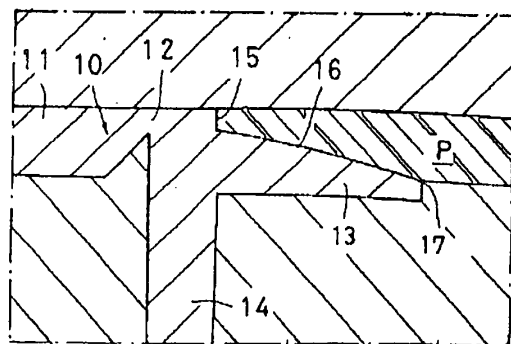
(74) 代理人 弁理士 後藤 憲秋 (外1名)

(54) 【発明の名称】 車室側部材と一体成形するためのエアバッグドア部材の構造

(57) 【要約】

【課題】 車室側部材と一体成形する際の車室側部材構成樹脂材料との接触による変形を生じることがなく、エアバッグドアの外観を美麗に保ち、しかも安全かつ確実な開放が実現される、車エアバッグドア部材の構造を提供する。

【解決手段】 エアバッグドア部材10は、ドア本体部11と、前記ドア本体部に形成されたドア開口部となる破断予定部12と、前記ドア本体部より一段低くなる段部15を介して形成された傾斜面16を備え、車室側部材と一体化される外周フランジ部13およびエアバッグ収容容器への取付部14を有し、破断予定部は前記成形用金型の型面部に当接するように構成されているとともに、前記外周フランジ部の端縁17は前記成形用金型の一般型面より低い凹部24B内に収容される。



【特許請求の範囲】

【請求項1】 車室側部材の成形用金型内にあらかじめ配置され該車室側部材を構成する樹脂材料を充填して一体に成形するためのエアバッグドア部材であって、前記エアバッグドア部材は、ドア本体部と、前記ドア本体部に形成されたドア開口部となる破断予定部と、前記ドア本体部より一段低くなる段部を介して形成された傾斜面を備えかつ車室側部材と一体化される外周フランジ部およびエアバッグ収容容器への取付部を有して、前記ドア本体部の少なくとも破断予定部は前記成形用金型の型面部に当接するように構成されているとともに、前記外周フランジ部の端縁は前記成形用金型の一般型面より低い凹部内に收容されるように構成されていることを特徴とする車室側部材と一体成形するためのエアバッグドア部材の構造。

【請求項2】 請求項1において、前記フランジ部が高剛性、高耐熱性を有する樹脂より構成された車室側部材と一体成形するためのエアバッグドア部材の構造。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】この発明は、車室側部材と一体成形するためのエアバッグドア部材の構造に関する。

【0002】

【従来の技術】例えば、自動車の助手席側に配置されるエアバッグ装置は、エアバッグと該エアバッグを折り畳んだ状態で收容するエアバッグ収容容器と、作動装置を含み、助手席前面のインストルメントパネルなどからなる車室側部材裏側に取り付けられる。前記エアバッグ装置が設けられた車室側部材には、エアバッグのための展開開口（予定）部が形成され、この開口部は平時には前記インストルメントパネルと同種の外観をもったエアバッグドア部によって覆われている。そして、一旦衝突などによって自動車が大いなる衝撃を受けた時には、前記エアバッグ収容容器内に収納されている作動装置が作動してエアバッグを膨張させ、該エアバッグの膨張圧力によって車室側部材の当該エアバッグドア部を裏側から押し開いて開口させる。

【0003】かかる車室側部材のエアバッグドア部の構造として次のようなものが知られている。一つは、エアバッグ展開開口部が形成された車室側部材に、後工程により、別成形したドア部材を前記エアバッグ展開開口部に取り付けたものである。他は、別成形したドア部材を車室側部材の成形金型内に配置して、当該車室側部材の成形と同時に、前記ドア部材と車室側部材とを一体化したものである。

【0004】しかしながら、前者の別成形構造にあっては、成形品寸法のわずかなばらつきあるいは使用に伴う成形品の収縮などによりドア部材周辺に隙間を生じやすく、車室側部材としての外観が損なわれるおそれがある。また、後工程によって車室側部材のエアバッグ展開

開口部にドア部材を取り付けることは、工数を増大させることとなる。

【0005】そこで、近年、後者の一体成形構造が種々検討されている。この構造によれば、車室側部材の成形時にエアバッグドア部材が一体化されるので、エアバッグドア部と車室側部材との間に生じる隙間がなく、外観が極めて良好となる。しかも、後工程が不要となるので効率的に生産することができる。本発明は、このような、車室側部材の所定位置に一体化して形成するためのエアバッグドア部材の構造に関する。

【0006】この構造の一例を図15および図16に示す。図中の符号50は車室側部材、51はエアバッグ装置、52はエアバッグ、53は作動装置、54はエアバッグ収容容器である。この車室側部材50の所定位置には、エアバッグドア部Dが区画され、エアバッグドア部材60が一体に形成されている。エアバッグドア部材60は、ドア本体部61と破断予定部62と取付部63を含む。ドア本体部61は、エアバッグドア部Dの裏面に配されエアバッグ膨張の際には開放され、エアバッグ52のスムーズな展開を可能とするもので、破断予定部62によりその形状が規定されている。なお、本例では、破断予定部62は略H字形に形成されていて、このドア本体部61は二枚のドア部分に分割されて開放される。また、破断予定部62は、前記ドア本体部61の裏面側から設けられたV溝またはU溝などの薄肉の脆弱部からなり、前記のように、エアバッグ膨張時には破断してドア本体部61を開放しエアバッグ展開開口部となる。取付部63はエアバッグ収容容器54に取り付けられて、ドア部材60とエアバッグ装置51とを連結する部分であって、前記ドア部材60の外周から垂下されている。

【0007】ところで、この種のエアバッグドア構造にあっては、ドア部材60がエアバッグの膨張時の衝撃で割れることがないように、周囲の車室側部材よりも柔らかい軟質エラストマーにより構成することが近年提案されている。また、該ドア部材60の破断予定部62部分には車室側部材を構成する樹脂材料が介在しないようにして、エアバッグドアの開裂を容易、確実にし、かつ開放時の車室側部材の割れや破片の発生を防止することが提案されている。

【0008】このようなドア部材60を用いて車室側部材を成形する際には、図16に示すように、前記ドア部材60を車室側部材用成形型70、71の所定位置に配置し、型内に車室側部材構成樹脂材料Pを充填し車室側部材50の成形と同時にドア部材60を一体化する。しかしながら、前記したように、ドア部材60が柔らかい軟質エラストマーより構成されている場合には、次のような成形上の問題が生ずる。

【0009】まず、車室側部材構成樹脂材料Pの充填時に、型内に配置されたドア部材60が、特にそのドア本体部61の外周縁部が樹脂圧や樹脂温度により変形

し、一体成形されたドア部材と車室側部材との合接ラインが乱れ、外観を損ねるという問題である。また、前記破断予定部62では、図示のように、樹脂圧や樹脂温度により破断予定部62表面が変形してそこに車室側部材構成樹脂材料Pが回り込み覆い、当該破断予定部62の破断性能に影響を与えるおそれがある。

【0010】

【発明が解決しようとする課題】そこで、この発明は、上記のような問題点を解消することを目的として提案されたものであって、車室側部材と一体成形する際の、車室側部材構成樹脂材料との接触によるドア部材の変形を生じることがなく、車室側部材表面に現れるエアバッグドアの外観を美麗に保ち、かつエアバッグドアの安全かつ確実な開放が実現される、車室側部材と一体成形するためのエアバッグドア部材の構造を提供しようとするものである。

【0011】

【課題を解決するための手段】すなわち、この発明は、車室側部材の成形用金型内にあらかじめ配置され該車室側部材を構成する樹脂材料を充填して一体に成形するためのエアバッグドア部材であって、前記エアバッグドア部材は、ドア本体部と、前記ドア本体部に形成されたドア開口部となる破断予定部と、前記ドア本体部より一段低くなる段部を介して形成された傾斜面を備えかつ車室側部材と一体化される外周フランジ部およびエアバッグ収容容器への取付部を有していて、前記ドア本体部の少なくとも破断予定部は前記成形用金型の型面部に当接するように構成されているとともに、前記外周フランジ部の端縁は前記成形用金型の一般型面より低い凹部内に収容されるように構成されていることを特徴とする車室側部材と一体成形するためのエアバッグドア部材の構造に係る。

【0012】

【発明の実施の形態】以下添付の図面に従ってこの発明を詳細に説明する。図1はこの発明構造の一例を示すエアバッグドア部材の斜視図、図2はそのa-a線における断面図、図3ないし図6は図1のエアバッグドア部材を用いた車室側部材の成形方法の一例を示すもので、図3は成形型にドア部材を配置した状態を示す断面図、図4はその要部の型面を拡大して示す断面図、図5は型内に車室側部材構成樹脂材料を注入した状態を示す断面図、図6は成形が完了した状態を示す断面図である。また、図7ないし図12は本発明の他の例を示すもので、図7は外周フランジ用凹部をフランジ端部の厚みよりも深く形成した例を示す断面図、図8は破断予定部を略H字形としたエアバッグドア部材の斜視図、図9はそのb-b線における断面図、図10はそのドア部材を車室側部材成形用金型に配した例を示す断面図、図11は破断予定部を略コ字形とした斜視図、図12はそのc-c線における断面図、図13は外周フランジ部を高剛性、

高耐熱性の樹脂により構成した例を示す断面図、図14は取付部を含む外周フランジ部を高剛性、高耐熱性の樹脂により構成した例を示す断面図である。

【0013】この発明のエアバッグドア部材は、車室側部材の成形の際にその型内に配置され、前記車室側部材の成形と同時にその所定位置に一体成形されるもので、図1に示すように、ドア本体部11と破断予定部12と外周フランジ部13および取付部14を有している。ドア本体部11は、車室側部材裏面に設けられるエアバッグ装置のエアバッグ展開開口部を覆う形状に形成され、その裏面に破断予定部12が設けられている。

【0014】破断予定部12は、膨張したエアバッグの圧力によって、前記ドア本体部11をドア部分の形状に沿って確実に破断させて開放し、その膨張したエアバッグが速やかに車室内に展開する開口部となるためのもので、V溝またはU溝などを設けることによって、その周囲より薄肉の脆弱部として破断しやすくしたものである。本実施例では、図のように平面視略H字形に形成されて、前記ドア本体部11を二枚のドア部分に分割する。前記ドア本体部11において少なくともこの破断予定部12は、車室側部材と一体化した際にその表面に現れるように厚みおよび溝深さが決定される。なお、この例では、破断予定部12を含むドア本体部11全体が車室側部材表面に現れている。

【0015】外周フランジ部13は、前記ドア本体部11の外側外周に一体に形成されている。この外周フランジ部13は、車室側部材の成形時に車室側部材構成樹脂材料に覆われて、ドア部材を一体化するためのもので、表面が当該ドア本体部11の表面高さよりも一段低くなる段部15を介して形成された傾斜面16を備えている。前記傾斜面16は、外周フランジ部13を端縁に向かって低くなるように傾斜している。それによって、傾斜面16を覆った車室側部材構成樹脂材料をドア本体部11に向かうにつれて薄くして、樹脂圧および樹脂温度ともに低くして段部15で停止させるので、車室側部材構成樹脂材料が、ドア部材の本体部外周や破断予定部に当接して変形させたりするおそれなくなる。

【0016】取付部14は、前記ドア本体部11の裏面に一体に設けられ、エアバッグ装置のエアバッグ収容容器へ取り付けられる。この取付部14は、エアバッグ収容容器の開口部分の形状に合わせて形成されることは言うまでもない。

【0017】このような構成よりなるエアバッグドア部材10は、前記したように、例えばTPO（ポリオレフィン系熱可塑性エラストマー）の軟質エラストマーなどからなり、別成形により成形されて車室側部材の成形用金型内にあらかじめ配置され、車室側部材と一体化される。図3ないし図7にその例を示す。図中符号20は車室側部材成形用金型、21は上型、22は下型、23は成形品キャビティである。下型22の型面所定位置に

は、ドア部材配置用凹部24が形成されている。このドア部材配置用凹部24は、前記ドア部材10を型内の所定の場所に位置決めするためのもので、取付部用凹部24Aと外周フランジ部用凹部24Bとからなる。

【0018】図4に示すように、取付部用凹部24Aは、ドア本体部11の少なくとも破断予定部12を、対向する型面（本実施例では上型21型面）に当接させる位置に保持する深さに形成される。この破断予定部12を対向する型面に当接させることによって、車室側部材の当該部分はドア部材の樹脂材料のみで構成される。それにより、破断予定部12に車室側部材構成樹脂材料が介在せず、当該部分の破断性能を確保するとともに破断面に破片などを生じることを防止する。

【0019】また、外周フランジ部用凹部24Bは、外周フランジ部13の少なくとも表側端縁17が型内に收容される深さに形成される。この外周フランジ部用凹部24Bは、エアバッグドア部材10の外周フランジ部表側端縁17を、少なくとも型面と同じ高さ位置に收容して、型内を流動して充填される車室側部材構成樹脂材料が当接して変形を生じさせるのを防ぐ。

【0020】なお、この外周フランジ部用凹部24Bは、外周フランジ部13が完全に型内に收容される深さ（つまり、表側端縁17よりも深い深さ）に形成してもよい。そうすれば、前記外周フランジ部13部分の厚みが大きくなり、ドア部材と車室側部材とがより強固に接合され一体化される。図7にその例を示す。符号10はドア部材、13は外周フランジ部、21Aは上型、22Aは下型、23Aはキャビティ、24Cは外周フランジ部用凹部である。

【0021】このように型内にドア部材をあらかじめ配置し、車室側部材を構成する樹脂材料Pを充填する。充填された樹脂材料Pは、図5に示すように、型内を流動しエアバッグドア部材10の位置に至る。ドア部材10の外周フランジ部13は、前記したように、先端が外周フランジ部用凹部24B内に収納されているので、型内に充填された車室側部材構成樹脂材料Pが、前記端縁17と当接することなくスムーズに流動し傾斜面16を覆う。そして、図6に示すように、傾斜面16を覆った車室側部材構成樹脂材料Pはドア本体部11に向かうにつれて樹脂圧および樹脂温ともに低くなって段部15で停止する。前記したように、前記傾斜面16はドア本体部11側が高くなるように傾斜しており、前記外周フランジ部13が車室側部材とが確実に一体化するだけでなく、車室側部材構成樹脂材料Pが段部15に当接してもドア部材に変形を生じさせることがない。しかも、傾斜面14を設けて先端を薄肉としても強度が低下することなく、外観も極めて良好である。得られた車室側部材には、外周フランジ部13において強固に一体化されたエアバッグドア部材10が形成されそのエアバッグドア部材10の外周縁が外観良好に形成されている。

【0022】図8ないし図14はこの発明の他の例を示すものである。図8および図9は破断予定部32を略H字形に形成するとともに、前記破断予定部32だけを高くした例である。この構造によれば、図10に示すように、前記破断予定部32が、対向する金型35の型面に当接するようになっている。図中の符号30はエアバッグドア部材、31はドア本体部、33は外周フランジ部、34は取付部、35は上型、36は下型である。

【0023】さらに図11および図12は破断予定部42を略コ字状に形成し、前記破断予定部42だけを高くした例である。図中の符号40はドア部材、41はドア本体部、43は外周フランジ部、44は取付部である。

【0024】また、外周フランジ部はポリプロピレン系の高剛性および高耐熱性樹脂によって構成してもよい。図13はドア部材の外周フランジ部13を高剛性および高耐熱性樹脂により構成した例である。符号10Aはドア部材、11Aはドア本体部、12Aは破断予定部、14Aは取付部である。さらに図14は、取付部14Bの外面を含む外周フランジ部13Bを、高剛性および高耐熱性樹脂により構成した例である。

【0025】

【発明の効果】以上図示し説明したように、この発明のエアバッグドア部材の構造によれば、ドア部材の外周フランジ部が金型の凹部内に收容されているので、車室側部材構成樹脂材料がドア部材と直接に接触することによる変形を生じることがなく、車室側部材表面に現れるエアバッグドアの外観を美麗なものとする。また、破断予定部は対向する型面に当接した状態で成形されるので、当該破断予定部が車室側部材の構成樹脂材料で覆われるということがなく、エアバッグドアを安全かつ確実に開放することができる。

【図面の簡単な説明】

【図1】この発明構造の一例を示すエアバッグドア部材の斜視図である。

【図2】そのa-a線における断面図である。

【図3】図1のエアバッグドア部材を用いた車室側部材の成形方法の一例を示すもので、成形型にドア部材を配置した状態を示す断面図である。

【図4】その要部の型面を拡大して示す断面図である。

【図5】型内に車室側部材構成樹脂材料を注入した状態を示す断面図である。

【図6】成形が完了した状態を示す断面図である。

【図7】外周フランジ部用凹部をフランジ端部の厚みよりも深く形成した例を示す断面図である。

【図8】破断予定部を略H字形としたエアバッグドア部材の斜視図である。

【図9】そのb-b線における断面図である。

【図10】そのドア部材を車室側部材成形用金型に配した例を示す断面図である。

【図11】破断予定部を略コの字形とした斜視図である。

【図12】そのc-c線における断面図である。

【図13】外周フランジ部を高剛性、高耐熱性の樹脂により構成した例を示す断面図である。

【図14】取付部を含む外周フランジ部を高剛性、高耐熱性の樹脂により構成した例を示す断面図である。

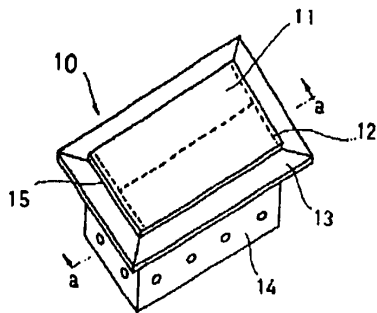
【図15】車室側部材と一体に形成された一般的なエアバッグドア部材の構造を示す断面図である。

【図16】その成形例を示す断面図である。

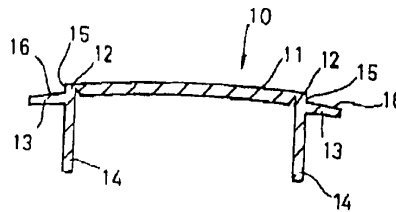
【符号の説明】

- 10 エアバッグドア部材
- 11 ドア本体部
- 12 破断予定部
- 13 外周フランジ部
- 14 取付部
- 15 段部
- 20 車室側部材成形用金型
- 24 ドア部材配置用凹部
- 24A 取付部収容凹部
- 24B 外周フランジ部用凹部
- P 車室側部材構成樹脂材料

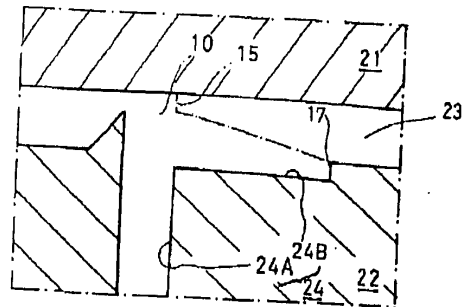
【図1】



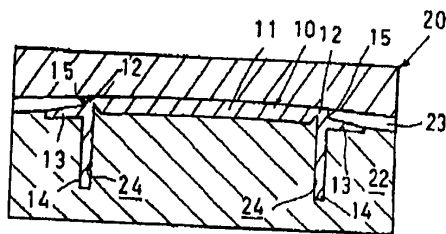
【図2】



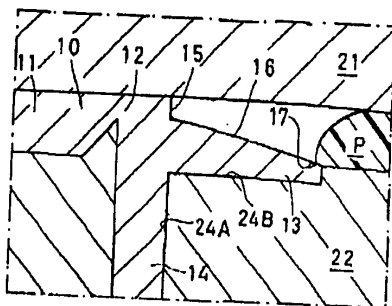
【図4】



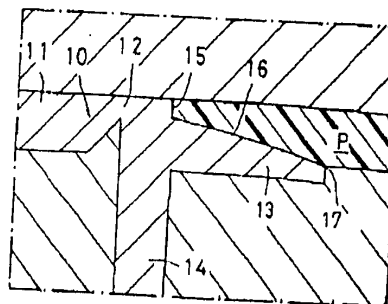
【図3】



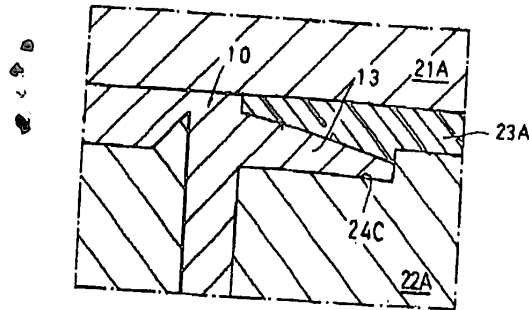
【図5】



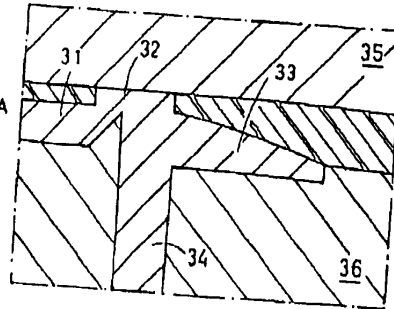
【図6】



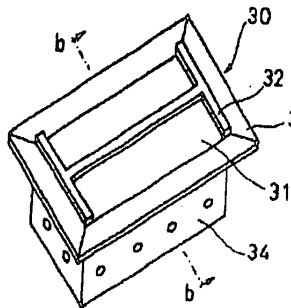
【図7】



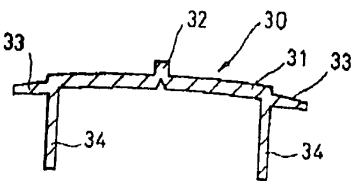
【図10】



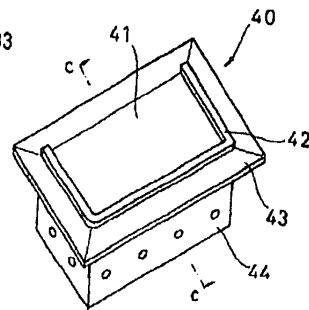
【図8】



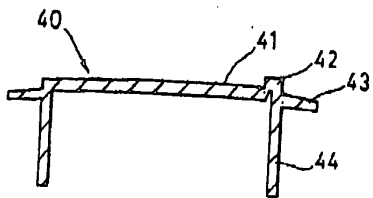
【図9】



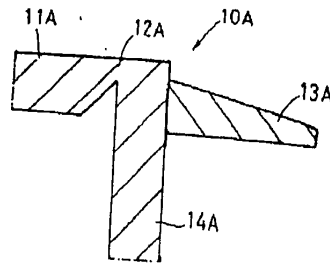
【図11】



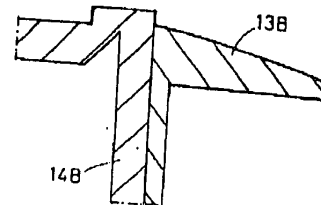
【図12】



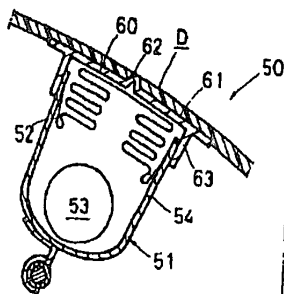
【図13】



【図14】



【図15】



【図16】

